

Amendments to the Drawings:

FIGS. 5A-7B have been amended to include the legend --Prior Art--.

FIGS. 1-11 and 13-21 have been amended to eliminate excessive text.

FIGS. 2 and 9 have been amended to correct the leader lines for reference

“1a”.

FIGS. 1, 5A, 6A, 7A, 8, 10, 13, 15, 17 and 19 have been amended to include cross-sectional markings as appropriate.

FIGS. 12, 22 and 23 are unchanged.

Attachments: 23 replacement sheets replacing 23 original sheets

### **REMARKS**

In the Office Action dated September 3, 2008, the Examiner objects to the drawings, Abstract and specification. The Examiner rejects claims 1-18 under 35 U.S.C. §112, second paragraph. The Examiner rejects claim 10 under 35 U.S.C. §§ 102(a) and 102(e). The Examiner rejects claims 1-18 under 35 U.S.C. §102(b), and rejects claims 1-9 and 11-18 under 35 U.S.C. §103(a). With this Amendment, claims 1-10, 12-14 and 16 are amended, claim 11 is canceled, and no claims are added. After entry of this Amendment, claims 1-10 and 12-18 are pending in the application. Reconsideration of the application as amended is respectfully requested.

The Examiner objects to the drawings for various reasons. The objections listed by the Examiner are noted, and the drawings are now corrected. First, in response to the Examiner's objection to FIGS. 5A-7B, these figures now include the legend "Prior Art." In response to the Examiner's objection that the drawings contain excessive text contrary to PCT Rule 11.11(a) and 37 CFR 1.84(o), FIGS. 1-11 and 13-21 have been amended to remove text. Applicants have also amended FIGS. 1, 5A, 6A, 7A, 8, 10, 13, 15, 17 and 19 to add appropriate hatching as required by PCT Rule 11.13(b) and 37 CFR 1.84(h)(3). The lead line associate with element 1a has been corrected in each of FIGS. 2 and 9. Finally, the Examiner objects to the drawings under 37 CFR 1.83(a), stating that the drawings fail to show the input shaft, output shaft and transmission rotation shaft of claims 14 and 16. These features have been canceled from claims 14 and 16, rendering the Examiner's objection to the drawings on this basis moot. Applicants respectfully submit that these changes address all of the Examiner's objections to the drawing figures. Entry of these replacement drawing sheets is respectfully requested.

The Examiner objects to the Abstract, stating that "lower" should be "lowers" in line 1, the reference numbers should be in parentheses and legal terms such as "said" should not be included. Applicants have amended the Abstract to correct the grammar, remove legal terms and remove the reference numbers, which are not required. Applicants respectfully submit that the Abstract conforms to the requirements of MPEP §§ 608.01(b) and 1826.

The Examiner objects to the specification, particularly to the description of certain figures. Applicants have amended the specification as shown in the accompanying "marked up" specification, taking particular note of the Examiner's objections. A Substitute

Specification is provided incorporating all of the changes shown in the marked up specification. As can be seen, the changes include adding reference numbers, correcting typographical errors and idiomatic English, and also eliminating unnecessary text such as sub-headers. No new matter has been added. Entry of the Substitute Specification is respectfully requested.

The Examiner rejects claims 1-18 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicants regard as the invention. With respect to claim 1, the Examiner states that the phrase “support force pressing the balk ring against the clutch gear in a relative rotation regulating structure” is unclear. The Examiner also states that the description of the synchronizing support force generating mechanism is incorrect. With respect to claim 2, the Examiner states that the position of the synchronizing support force generating mechanism and the position of the relative rotation regulating structure are unclear. The Examiner also objects to antecedent basis for certain elements in claim 2. The Examiner states similar problems in claims 12 and 13 as those in claim 1. The Examiner further states that the phrases “axially toward the transmission rotation shaft” and “being formed a balk ring” in claims 14 and 16 are unclear. Finally, the Examiner objects to the antecedent basis of “the transmission rotation shaft” in claim 16.

Applicants have made a number of changes to each of claims 1-10, 12-14 and 16 to clarify antecedent basis and certain other language in these claims. Applicants respectfully submit that these amendments also address the Examiner’s rejections under 35 U.S.C. §112, second paragraph. Applicants respectfully request withdrawal of these rejections.

The Examiner rejects claim 1 and its dependent claims 2-9 under 35 U.S.C. §102(b) as being anticipated by U.S. 2004/0154892 A1 to Coxon et al. Further, the Examiner rejects claim 1 and its dependent claims 2-9 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,105,927 to Frost (hereinafter Frost ‘927) in view of U.S. Patent No. 5,113,986 to Frost (hereinafter Frost ‘986).

Claim 1 now describes a relative rotation regulating structure located between the balk ring and the synchro hub and a synchronizing support force generating mechanism located between the balk ring and the synchro hub and spaced apart in a circumferential direction from the relative rotation regulating structure. The components of Coxon et al. pointed to by the Examiner do not conform to the relative rotation regulating structure and

synchronizing support force generating mechanism as described in claim 1 in part because no synchronizing support force generating mechanism is located between the balk ring and the synchro hub and spaced apart in a circumferential direction from the relative rotation regulating structure. Since Coxon et al. fails to teach or suggest all the features of claim 1, Applicants respectfully submit that claim 1 and its dependent claims are allowable over Coxon et al.

With respect to the combination of Frost '927 and Frost '986, Applicants first submit that the purported combination appears to be motivated solely by hindsight reconstruction. Frost '986 says that the spring member 50 can be used with other strut-type mechanisms, and Frost '927 is a strutless mechanism, not a strut-type mechanism. Further, Frost himself did not make the combination despite these applications being co-pending, negating the argument that one skilled in the art at the time the invention was made would be motivated to make the combination to inhibit self-energization due to viscous drag effects. Second, the Examiner argues that the blocker ring projection 52 and the canted ends 68 of leaf spring tabs 66 of Frost '986 comprise a relative rotation regulating structure. These components are not between the balk ring and synchro hub as required by claim 1 and its dependent claims. For the foregoing reasons, Applicants respectfully submit that claim 1 and its dependent claims are allowable over Frost '927 and Frost '986.

In addition to the foregoing, Applicants have amended claim 2 to describe that the synchronizing support force generating mechanism includes a synchro hub concave portion of the synchro hub and a balk ring convex portion of the balk ring, the synchro hub concave portion and the balk ring convex portion extending axially and the synchronizing support force generating mechanism generating the synchronizing support force by coming into contact with a cam surface due to the relative rotation between the synchro hub and the balk ring and the relative rotation regulating structure includes a relative rotation positioning concave portion and a relative rotation positioning convex portion extending axially that regulate the amount of relative rotation between the synchro hub and the balk ring by means of concave-convex contact of the relative rotation positioning concave portion and the relative rotation positioning convex portion. In addition to its dependence from claim 1, Applicants respectfully submit that claim 2 is allowable because Coxon et al. and the Examiner's combination of Frost '927 and Frost '986 fail to teach or suggest the additional features of the relative rotation regulating structure as described therein.

Claim 3 describes that a circumferential gap between an inclined surface of the synchro hub concave portion and an inclined surface of the balk ring convex portion is L1 and a circumferential gap between the relative rotation positioning concave portion and the relative rotation positioning convex portion is L2. L1 is larger than L2. The Examiner has failed to identify where in Coxon et al. and where in Frost '927 and Frost '986 such features are taught or suggested, and Applicants have failed to find this combination of features in the cited art. Applicants respectfully submit that the combination of features of claim 3 is patentable over the cited art for this reason and based on its dependence from claim 1. If the Examiner maintains this rejection, Applicants respectfully request that the Examiner explain in detail how the cited art teaches or suggests these features.

Claim 5 describes that an axial length of the relative rotation positioning convex portion is L4 and an axial moving distance of the balk ring during synchronization is L3. L3 is larger than L4. The Examiner has failed to identify where in Coxon et al. and where in Frost '927 and Frost '986 such features are taught or suggested, and Applicants have failed to find this combination of features in the cited art. Applicants respectfully submit that the combination of features of claim 5 is patentable over the cited art for this reason and based on its dependence from claim 1. If the Examiner maintains this rejection, Applicants respectfully request that the Examiner explain in detail how the cited art teaches or suggests these features.

Claim 7 describes that the relative rotation positioning concave portion is a trapezoidal groove with a circumferential length at its opening narrower than a circumferential length at its bottom, and the relative rotation positioning convex portion is a trapezoidal projection with a circumferential length at its top wider than a circumferential length at its base. Claim 8 depends from claim 7 and describes that the circumferential length of the relative rotation positioning concave portion at its opening is L5, the circumferential length of the relative rotation positioning convex portion at its top is L6, and L5 is larger than L6. The Examiner has failed to identify where in Coxon et al. and where in Frost '927 and Frost '986 such features are taught or suggested, and Applicants have failed to find this combination of features in the cited art. Applicants respectfully submit that the combination of features of claim 7 and that of claim 8 are patentable over the cited art for these reasons in addition to their dependence from claim 1. If the Examiner maintains these rejections, Applicants respectfully request that the Examiner explain in detail how the cited art teaches or suggests these features.

Claim 9 describes that the relative rotation positioning concave portion is one of a plurality of concave circumferentially-spaced portions, each of the plurality comprising a rectangular groove, and the relative rotation positioning convex portion is one of a plurality of convex circumferentially-spaced portions, each of the plurality comprising two rectangular projections. The Examiner has failed to identify where in Coxon et al. and where in Frost '927 and Frost '986 such features are taught or suggested, and Applicants have failed to find this combination of features in the cited art. Applicants respectfully submit that the combination of features of claim 9 is patentable over the cited art for this reason and based on the dependence of claim 9 from claim 1. If the Examiner maintains this rejection, Applicants respectfully request that the Examiner explain in detail how the cited art teaches or suggests these features.

The Examiner rejects claim 10 under 35 U.S.C. §102(b) as being anticipated by Frost '927, rejects claim 10 under 35 U.S.C. §102(a) and 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 2005/0061095 A1 to Yoshino et al. and rejects claim 10 and its dependent claims 11-13 under 35 U.S.C. §102(b) as being anticipated by Coxon et al. Finally, the Examiner rejects dependent claims 11-13 under 35 U.S.C. §103(a) as being unpatentable over Frost '927 in view of Frost '986.

In claim 10, the feature of original claim 11 of regulating the relative rotation has been added, and claim 11 has been canceled without prejudice. Also, the synchronizing support force generating mechanism located between the balk ring and the synchro hub is described as converting the circumferential force to a synchronizing support force axially applied to press the balk ring to the clutch gear. The relative rotation regulating structure located between the balk ring and the synchro hub regulates the relative rotation between the balk ring and the synchro hub, and the relative rotation regulating structure is spaced apart in a circumferential direction from the synchronizing support force generating mechanism.

Applicants respectfully submit that claim 10 as amended is allowable over each of Frost '927 and Yoshino et al. as neither reference teaches or suggests a relative rotation regulating structure. Applicants further submit that, among other things, Coxon et al. fails to teach or suggest a relative rotation regulating structure and synchronizing support force generating mechanism that are spaced apart as described in claim 10. Accordingly, claim 10 and its dependent claims 12 and 13 are allowable over Coxon et al.

With respect to the obviousness rejection of claims 12 and 13, the combination

of Frost '986 fails to cure the deficiencies with respect to the teachings of claim 10 and Frost '927 described above. Namely, and as described previously with respect to claim 1, one skilled in the art at the time the invention was made would not be motivated to make the combination of Frost '927 and Frost '986 to inhibit self-energization due to viscous drag effects. Further, the combination still fails to teach or suggest a relative rotation regulating structure as described in claim 10 and its dependent claims 12 and 13 because the blocker ring projection 52 and the canted ends 68 of leaf spring tabs 66 are not between the balk ring and synchro hub as described in claim 10. For the foregoing reasons, Applicants respectfully submit that claims 12 and 13 are allowable over any permissible combination of Frost '927 and Frost '986.

In addition, claim 12 has been amended to describe that the relative rotation regulating structure is formed of facing portions of the balk ring and the synchro hub. Applicants respectfully submit that neither Coxon et al. nor any permissible combination of Frost '927 and Frost '986 teach or suggest this feature of claim 12. Accordingly, claim 12 is allowable for this reason in addition to its dependence from claim 10.

Claim 13 depends from claim 12 and describes that the synchronizing support force generating mechanism is formed of facing portions of the synchro hub and the balk ring and comprises a synchro hub concave portion and a balk ring convex portion where the synchronizing support force is generated by the balk ring convex portion coming into contact with a cam surface due to the relative rotation between the synchro hub and the balk ring and further that the relative rotation regulating structure comprises a relative rotation positioning concave portion and a relative rotation positioning convex portion that regulates the amount of relative rotation between the synchro hub and the balk ring by means of concave-convex contact. Applicants respectfully submit that neither Coxon et al. nor any permissible combination of Frost '927 and Frost '986 teach or suggest the combination of features of claim 13, particularly the features of the relative rotation regulating structure. Accordingly, claim 13 is allowable for this reason in addition to its dependence from claim 10.

The Examiner rejects claim 14 and its dependent claim 15 under 35 U.S.C. § 102(b) as being anticipated by Coxon et al. and under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,573,371 to Akutagawa in view of Frost '927 and Frost '986.

In claim 14, the synchro hub and the balk ring are described as forming a

synchronizing support force generating mechanism on facing surfaces therebetween and as forming a relative rotation regulating structure on the facing surfaces therebetween. The synchronizing support force generating mechanism and the relative rotation regulating structure are spaced apart in a circumferential direction from one another. Applicants respectfully submit that Coxon et al. fails to teach or suggest the features of claim 14 and its dependent claim 15 as amended because, in part, Coxon et al. fails to teach or suggest a synchronizing support force generating mechanism and a relative rotation regulating structure spaced apart in a circumferential direction from one another.

With respect to the obviousness rejection, Applicants again submit that any combination of Frost '927 and Frost '986 is motivated by hindsight considerations as discussed above with respect to claim 1. Further, Applicants submit that even if Frost '927 and Frost '986 were combined with Akutagawa, the combination would still fail to teach or suggest all the features of claim 14 and its dependent claim 15 because the blocker ring projection 52 and the canted ends 68 of leaf spring tabs 66 do not correspondence to a relative rotation regulating structure on facing surfaces between a synchro hub and a balk ring.

For the foregoing reasons, claims 14 and 15 are allowable over Coxon et al. and are allowable over any permissible combination of Akutagawa, Frost '927 and Frost '986.

The Examiner rejects claim 16 and its dependent claims 17 and 18 under 35 U.S.C. §102(b) as being anticipated by Coxon et al. and under 35 U.S.C. §103(a) as being unpatentable over Akutagawa in view of Frost '927 and Frost '986.

In claim 16, the converting means is described as being integral portions of facing surfaces of the synchro hub and the balk ring, and the regulating means is described as being integral portions of the facing surfaces of the synchro hub and the balk ring and being spaced apart in a circumferential direction from the converting means. Applicants respectfully submit that Coxon et al. fails to teach or suggest the features of the claim 16 and its dependent claims as amended. In addition, and with respect to the obviousness rejection, Applicants again submit that any combination of Frost '927 and Frost '986 is motivated by hindsight considerations as discussed above with respect to claim 1. Further, Applicants submit that even if Frost '927 and Frost '986 were combined with Akutagawa, the combination would still fail to teach or suggest all the features of claim 16 and its dependent claims 17 and 18 because the blocker ring projection 52 and the canted ends 68 of leaf spring tabs 66 do not correspondence



to regulating means that are integral portions of facing surfaces of a synchro hub and a balk ring.

For the foregoing reasons, claims 16-18 are allowable over Coxon et al. and are allowable over any permissible combination of Akutagwa, Frost '927 and Frost '986.

It is submitted that this Amendment does not add any new subject matter to the Application. Consideration of the Application as amended is requested. It is submitted that this Amendment places the Application in suitable condition for allowance; notice of which is requested.

If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

YOUNG BASILE HANLON  
MACFARLANE & HELMHOLDT, P.C.

/Michelle L. Knight/

Michelle L. Knight  
Registration No. 47711  
(248) 649-3333

3001 West Big Beaver Rd., Ste. 624  
Troy, Michigan 48084-3107